

Exhibit 3

CONTAINS HIGHLY CONFIDENTIAL INFORMATION – ATTORNEYS’ EYES ONLY

available to me as of the date of this report and produced by the parties, along with other public information, such as publicly available documentation relating to the internal operation of BitTorrent. A complete list of the materials I received, examined, or reviewed is attached hereto as Exhibit B.

9. I have had the opportunity to discuss the operation of the MarkMonitor System with Sam Bahun and Jacob Svalastoga of MarkMonitor.

10. I have had the opportunity to discuss the operation of Audible Magic’s audio fingerprinting and identification system with Erling Wold.

11. This report reflects the opinions that I have formed through my own independent analysis and evaluation. If called upon to testify at trial, I may present oral testimony and/or tutorials about the evidence I analyzed, my analysis processes, and the opinions I formed based on my analysis.

12. In addition, I understand that I may testify regarding my opinions on related matters, including those raised at trial by Defendants’ attorneys and experts, or the Court, concerning these issues. I reserve the right to supplement my report in the event that any new facts that may become known to me prior to or during trial impact my opinions or the bases therefor. I am aware of the continuing obligation to supplement my report under Rule 26 of the Federal Rules of Civil Procedure.

13. I am a salaried employee of JurisLogic, and my salary does not depend in any way on the outcome of this case. I am also one of the owners of JurisLogic. JurisLogic is compensated at the rate of \$595 an hour for my work in this case. My compensation as an owner of JurisLogic does not in any way depend on the outcome of this case. The amount of fees is not contingent upon the opinions expressed herein or on the outcome of this matter.

III. MATERIALS CONSIDERED

14. In preparing this report, I have reviewed available information as listed immediately below.

- a. Plaintiffs’ Complaint, Plaintiffs’ interrogatories, and Cox’s interrogatory responses.

CONTAINS HIGHLY CONFIDENTIAL INFORMATION – ATTORNEYS’ EYES ONLY

VII. OVERVIEW OF MARKMONITOR TECHNOLOGY

51. My assessment of the MarkMonitor system is based on the following information: the MarkMonitor source code, evidence files collected by MarkMonitor that were the basis for Cox notices, a spreadsheet summarizing the notices sent on behalf of RIAA and its members to Cox¹⁰, a spreadsheet that documents the Audible Magic matching results for matches on 47,381 files¹¹, and samples of notices sent to Cox on behalf of RIAA and its members¹².

52. MarkMonitor used Audible Magic to confirm the identity of downloaded music files. As a part of my analysis, I also reviewed information relating to Audible Magic, including a copy of the Audible Magic “OEM Application Programming Guide and Customer Support Information” and information that is publicly available on Audible Magic’s web site. I also interviewed Audible Magic’s Chief Scientist, Erling Wold.

53. I was also provided with two studies that address the efficacy and operation of the MarkMonitor system. These documents included reports prepared by Stroz Friedberg and Harbor Labs.¹³ In addition, I was provided a MarkMonitor document prepared for the RIAA and MPAA that describes MarkMonitor’s P2P Enforcement Process.¹⁴

54. I interviewed Mark Monitor employees Sam Bahun and Jacob Svalastoga.

55. It is my understanding that certain Plaintiffs are members of RIAA and have delegated to RIAA the authority to send notices to ISPs on their behalf. It is further my understanding that RIAA had contracted with MarkMonitor to provide services that include identifying P2P users who are distributing copyrighted music that belong RIAA’s members. MarkMonitor acted as RIAA’s agent on behalf of Plaintiffs to send notices to Internet Service Providers whose subscribers are distributing copyrighted music. Pursuant to this relationship, MarkMonitor was to provide detection and notice sending services.

¹⁰ Plaintiffs_00286430

¹¹ Plaintiffs_00286431

¹² COX_SONY_00030874, COX_SONY_00045258, COX_SONY_00078757, COX_SONY_00086742, COX_SONY_00090897, COX_SONY_00106079, COX_SONY_00117236, COX_SONY_00125534, COX_SONY_00151634, COX_SONY_0016088

¹³ RIAA_00127769 (Stroz Friedberg Oct. 14, 2012); RIAA_00127758 (Harbor Labs Dec. 5, 2013); RIAA_00127789 (Harbor Labs Mar. 3, 2014).

¹⁴ MM000189

CONTAINS HIGHLY CONFIDENTIAL INFORMATION – ATTORNEYS’ EYES ONLY

64. RIAA had contracted with MarkMonitor to use the MarkMonitor system for identifying P2P users who are distributing RIAA members’ copyrighted music. I use the term “payload” throughout this report to refer to the files (containing a song or songs) that are being distributed on a P2P network.

65. As a part of its process to identify and confirm P2P distribution of copyrighted music, MarkMonitor searched P2P networks for files that appeared to contain the copyrighted music. When it found a file that appeared to contain copyrighted music that it had not previously investigated, it downloaded the file so that it could submit it for content verification. In the case of BitTorrent, it searched first for torrent files, and then downloaded the entire torrent payload (which may contain multiple files) so that all of the files could be submitted for content verification. Once downloaded, the SHA-1 hash for the payload was stored along with information about the date/time and location, and the payload was tagged as “unverified” unless the content hash matched the hash of a previously verified payload.

66. Once the content of the payload file had been verified, as described below, MarkMonitor marked the file’s hash as verified. Once verified, MarkMonitor could rely on matching via file hashes to determine whether the payload being distributed by a peer is for a known and verified work.

B. Verification of Infringing Content

67. As previously noted, MarkMonitor used a commercial service provided by Audible Magic to verify the contents of files that appeared to contain copyrighted music. Audible Magic is an industry leader in audio content identification. Based on my conversation with Erling Wold, Chief Scientist at Audible Magic, it is my understanding that the Audible Magic database used in support of song identification requests submitted for the RIAA project included approximately 15,000 recordings. The content for this database was provided by the recording companies.

68. The songs that MarkMonitor downloaded from peers were submitted to Audible Magic for “Type 1” matching. In this mode, Audible Magic used a clip of approximately 20 seconds that starts a few seconds past the beginning of the recording. This clip is processed to generate an acoustic “fingerprint” that is then matched against the Audible Magic database to

CONTAINS HIGHLY CONFIDENTIAL INFORMATION – ATTORNEYS' EYES ONLY

confirm the identity of the work. The audio fingerprint is created based on acoustic characteristics of the audio file rather than the file's specific content.

69. Audible Magic returns an XML formatted file that contains an indicator identifying whether the match was successful, along with other metadata related to the work including the ID and the location in the song where the match was identified.

70. When MarkMonitor receives match results from Audible Magic, it processes the XML file and records the results of the match as a part of the data maintained in association with the payload that was submitted. During the notice generation processing this information is used to determine whether a particular Case file is eligible to generate a notice.¹⁶

i. Assessment of Audible Magic Accuracy

71. Based on my conversations with Mr. Wold, Audible Magic performs extensive testing against large collections of known-good works, to ensure that their system is operating accurately. Audible Magic estimates that the error rate for misidentification was less than one in a billion.

72. The Audible Magic web site also states that their positive identification rates (the ability to identify a song based on the content in their database) exceeds 99% and false positive rates (instance where a song is mis-identified) are less than 10^{-6} . This is an exceedingly low error rate, and it demonstrates the system's reliability.

73. Digital fingerprinting system such as Audible Magic typically have three possible vulnerabilities: the quality of their reference database, the completeness of their collection of fingerprints, and the quality of their matching software.

74. With respect to the first two vulnerabilities, the Audible Magic database includes audio fingerprints that are derived directly from works submitted by the record companies. As such, it is extremely unlikely that any of the works in suit would be either misidentified by the record company or omitted from the database altogether.

75. In the unusual event that a file for one of the works in suit was inadvertently omitted from the database, the result would be that Audible Magic could not return a match, and

¹⁶ AudioServerResponse.cs

CONTAINS HIGHLY CONFIDENTIAL INFORMATION – ATTORNEYS’ EYES ONLY

the file would remain “unverified” in MarkMonitor’s database. Were this situation to occur, the notice generation processing would not be able to generate any notice for cases that involve the unverified work, so Cox could not have received any notices that were the result of this error.¹⁷

76. With respect to the third possible vulnerability, the accuracy of the algorithms, it is my understanding that at RIAA’s request, Mark Monitor re-downloaded copies of all of the music files that were on a list of hashes provided by RIAA and resubmitted these files to Audible Magic for re-verification. It is my understanding that this list included the hash for every work that is in this lawsuit. In all cases the Audible Magic system returned the proper file identification. As a part of this exercise, MarkMonitor also recalculated all of the hash files from the downloaded files and matched them to the hashes of the files that were at issue. Based on this re-testing, it is my opinion that the Audible Magic system has demonstrated that there is no accuracy concern with respect to the identification of the specific works in this lawsuit.

C. Search for and Identification of Infringing Peers on P2P Networks via Collection Agents

77. MarkMonitor used custom Collection Agents to search P2P networks for copies of the protected works. There are separate Collection Agents for BitTorrent, Ares, eDonkey, and Gnutella. Each Collection Agent functions on the P2P network as a standard peer with respect to its communications.¹⁸

78. The Collection Agents search the P2P networks for any payload file that MarkMonitor has identified as being likely to contain a protected work. Depending on what the P2P protocol supports, the search techniques may include keyword searches related to the titles of protected works, hash searches, and for BitTorrent, searches for torrent files that may be associated with protected works.

D. Infringing Peer Information Collection and Verification

When collecting evidence for Case files, the search and communication with peers is performed for both verified and unverified payloads, but notices can only be generated for peers

¹⁷ See RIAA_00128230

¹⁸ For example, BitTorrentInvestigationEngine.cs drives processing for BitTorrent investigations